

PTO 02-2332

German Patent No. DE 43 00 920 A1

DEVICE COMBINATION FOR WET AND DAMP MOPPING OF FLOORS

Franz Kresse et al.

UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. APRIL 2002
TRANSLATED BY THE RALPH MCELROY TRANSLATION COMPANY



FEDERAL REPUBLIC OF GERMANY
GERMAN PATENT OFFICE
PATENT NO. 43 00 920 A1

Int. Cl.⁵: A 47 L 13/257

Filing No.: P 43 00 920.4

Filing Date: January 15, 1993

Date Laid-open to Public Inspection: July 21, 1994

DEVICE COMBINATION FOR WET AND DAMP MOPPING OF FLOORS

[Gerätekombination zum Nass- und Feuchtwischen von Fussböden]

Inventors: Franz Kresse et al.

Applicant: Henkel-Ecolab GmbH & Co oHG

Documents Considered for Evaluation
of Patentability:

DE-PS 5 83 653
DE 40 22 326 A1
DE 90 12 476 U1
DE 87 06 501 U1
DE 76 15 109 U1
GB 21 42 225
GB 13 60 882
US 50 93 190
US 49 47 504
US 34 11 173
US 30 12 265
US 27 08 283
EP 14 501 B1

The following statements are taken from the documents submitted by the applicant.

Description

The invention pertains to a device combination for wet or damp mopping of floors. The combination consists, on the one hand, of a flat mop with a holder comprising essentially a one-piece plate, having a wiper attachment attached on the bottom and a pivotable handle mount

positioned on the opposite plate side. On the other hand, the combination consists of a wringing device for the wiper attachment.

Floors are ordinarily cleaned with scrubbers and mop cloths in the household and small business sector. This procedure entails a number of drawbacks. The skin comes in contact with the dirty water. Effort-demanding wringing is necessary to remove the dirty water from the mop cloth. With cabinets, tables and similar occupied surfaces and corners, complete cleaning is only possible with difficulty, if at all, because of the lack of maneuverability of the scrubber. An ergonomically disadvantageous bent posture is generally unavoidable. The cleaning performance, i.e., the floor surface cleaned per unit time, as well as the degree of cleaning during back and forth wiping movements, is only limited.

A wet mop with sponge cloth strips, in combination with a wringing device that can be suspended in an ordinary pail, does permit cleaning of floors without exposing the skin to contact with the dirty water. The relatively small mop equipped with the sponge cloth shag, however, only permits cleaning of relatively small surfaces before it must be wrung out and dipped back into the fresh cleaning solution. The floor surface cleaned per unit time is also relatively limited during use of this device, since it must be relatively small, in order to be wrung out in the suspended wringing device. Another drawback occurs in an attempt to clean occupied surfaces. In this case, the dirt is only partially removed and, on the other hand, pushed farther beneath tables, cabinets, etc.

The mentioned problems do not occur in the mopping devices used in the commercial sector. Such devices are known in a wide variety of versions. An example is described in DE 40 22 326 A1. The devices consist of a mop holder with a pivotable handle mount and a removable mop covering. The mop holder can be rigid or opened and closed into two wings. The pivotable handle mount permits high maneuverability during cleaning of occupied surfaces and corners without requiring a bent posture. The relatively large surface of the mop covering permits high cleaning performance with only limited back and forth movement and a large cleaned floor surface per unit time. The effort-demanding wringing out of the mop cloth required during work with scrubbers and mop cloths is not applicable, since the mop covering is drained by means of a press arranged in a wheeled bucket. Skin contact with the dirty water is also avoidable here. The mentioned presses, however, are necessary, in order to achieve sufficient degree of drainage in the known mop coverings. The wheeled buckets used in the business sector with presses, however, are too cumbersome for use in the household and small business sector and are therefore not considered. A sufficient degree of drainage cannot be achieved, on the other hand, without the use of such a press.

The underlying task of the invention is therefore to provide a device combination for wet or damp mopping of floors for use in the household and small business sector, through which

skin contact with the dirty water can be avoided, drainage of the mop attachment is possible without significant exertion, high cleaning performance is achieved, and which is maneuverable enough in order to be able to also clean occupied surfaces and corners fully and without a problem.

This task is solved according to the invention in the device combination of the type just described in that the bottom of the plate-like holder is designed as a flat surface, that the holder is inflexible, and that the mop attachment comprises essentially a sponge cloth consisting of mostly cotton and viscose occupying the entire surface of the bottom of the holder, with a water absorbency of at least 600%, especially at least 1000% of its own weight, and is provided with sliding aids, at least on the side facing the floor, and that the wringing device is designed as a sieve-like plate, especially for suspension in a pail. The inflexibility of the holder, which is possible in one piece or also in a collapsible version, in conjunction with the high-water-absorbent sponge cloth, permits easy drainage on the sieve-like plate, preferably suspended in a pail, without requiring complicated devices like presses. The main drawback of sponge cloths, namely, poor accessibility in the drying phase, is avoided by the sliding aid mounted at least on the side facing the floor.

The bending rigidity of the bottom of the plate-like holder for the mop attachment is important, so that the pressure on the sieve-like plate, for instance, a perforated metal sheet, acts uniformly on the mop attachment, and the sponge cloth covering, and thoroughly drains it. The top of the holder has struts to reinforce the stability and bending rigidity in an advantageous variant of the invention. For this purpose, transverse ribs can also be provided. The plate can also have rounded corners.

The tendency of the plate-like holder to tilt, when used on a floor, is advantageously avoided by the fact that the pivotable handle mount is anchored deep enough in the holder. The pivotable handle mount can be a Cardan joint, for example, an S-joint, between two brackets on the top of the holder plate. For fastening of the mop attachment, the holder plate can have several, especially two notches, for snapping in of each strut mounted on the mop covering. It is also expedient to provide all sides of the plate with notches, in order to fasten the mop attachment by means of bands. The bands can also be attached in another variant by clamping devices to the holder plate.

The mop according to the invention has a number of advantages. In the variant with a one-part and one-piece base plate, it requires only limited manufacturing costs. Uniform pressure exertion on the mop covering during the pressing and mopping process is guaranteed by the inflexibility and flatness of the bottom of the holder. The mop covering can be attached in time-saving fashion to the plate-like holder by means of notches or clamping devices or rubber

bands. Because of the closed surfaces and the absence of recesses, dirt does not deposit on the mop or can easily be removed from it.

The sponge cloth material consisting mostly of cotton and viscose has an extreme water absorbency of at least 600% and typically about 1400% of its own weight. The sponge cloth can be conveniently and practically drained by simple wringing. An example of such a sponge cloth is the material "Nalo" / "Nalophan" from Hoechst AG. It consists roughly of one-third cotton fibers of 12-15 mm length and about two-thirds regenerated cellulose. At a thickness of 4 mm, the material has a weight of 550 g/m².

Use of such a strongly absorbent material, however, has thus far been hampered by the fact that the high absorbency severely restricts easy running in the dry phase required during use. For this reason, damp mop coverings for floor care, as described, for example, in DE 38 09 279 C1, were not used over the entire surface, but only as strips with loops or fringes. The known coverings do have high absorbency, but can only be drained with difficulty without press devices.

On the other hand, a full-surface sponge cloth covering is proposed in the present invention. The easy running required in the dry phase is achieved by sliding aids on the side of the sponge cloth facing the floor. Mop attachments with a thickness of 2-30 mm in the dry state are preferred. Several, especially two, struts or bands applied to the top can be mounted for fastening of the mop attachment to the plate-like holder. Such struts are known per se and are described, for example, in DE 40 22 362 A1. Another advantageous method for fastening the mop attachment to the holder is made possible by insertion receptacles to accommodate the holder, mounted on the long end of the mop attachment. Such insertion receptacles are shown, for example, in DE 38 09 279 C1.

Mesh-, strip-, ring- and/or seam-like materials applied to the top of the mop attachment are proposed as sliding aids, which consist of synthetic yarns, cotton, sisal and/or hemp or the like. The easy accessibility of the mop covering in the drying phase can therefore be guaranteed by sewing the covering into a coarse-mesh, thin net or by the fact that the cleaning side of the covering is provided with slide bands or loops. Another possibility consists of providing the covering with a wide-mesh seam or a cross-stitch at a spacing of about 5 cm. The sliding aids do not hamper the sponge cloth covering in its absorbency, but permit easy sliding in the dry phase. The wringing out and drainage effect is not restricted by this type of sliding aid either. The stitching of a mesh, strip, etc., further stabilizes the sponge cloth material and reduces its wear.

In another variant, the invention proposes fringes, loops or shag applied to the bottom on the edge of the mop attachment. In addition to the regions with high liquid absorbency, namely, the sponge cloth material, regions with particularly high dirt absorbency, namely the fringes, loops or shag, are available.

To summarize, a number of important advantages are achieved with this mop attachment. It has a high degree of drying and permits very good cleaning performance. The entire surface of the support leads to a mopping effect, as during mopping with mop cloths, and to residue-free dirt removal. The mesh or slide rails stitched on as sliding aids or the like additionally have an abrasive effect on dirt encrustations. With limited pressure on the holder, the mop covering can be simply and conveniently drained in a press sieve.

With the preferred rectangular shape of the plate-like holder of the mopping device, it is expedient if the opening of the corresponding pail is also rectangular. It is also proposed that the wringing device be designed as a perforated sheet with upward bent edges on the two opposite sides for horizontal or oblique suspension on a pail. If the perforated sheet is suspended obliquely in the pail, adequate passage for the wrung out water must be ensured. It is also preferred that the edges of the perforated sheet be flanged, and that struts be provided on the perforated plate to prevent bending during wringing out of the mop attachment, so that uniform wringing out of the sponge cloth covering is guaranteed.

In another preferred embodiment of the invention, the device combination comprises a pail divided by a partition at roughly half-height into two regions, into which the sieve-like plate can be suspended, with which the mop attachment can be wrung out. The partition is preferably mounted obliquely in the direction of the pail pouring spout, so that both chambers can be emptied simultaneously. To facilitate handling, a handle trough can be provided on the bottom of the pail and a semiround pail opening edge as a pouring aid. In contrast to a spout, the semiround pail opening edge permits deliberate emptying either of only one or the other of the chambers divided by the partition or both chambers simultaneously.

If the sieve-like plate is provided for oblique introduction into the pail, it advantageously has a wipe-off rail or wipe-off roll over its width at roughly half-height and a stop on its end. The sieve-like plate can be suspended with one edge on the edge of the pail and supported on the other edge on the pail partition at roughly half-height. During wringing out, the plate-like holder with the sponge cloth covering applied to it is placed on the suspended sieve-like plate and pushed downward over the wipe-off rail or wipe-off roll. Particularly effective drainage is achieved. The stop provided on the end of the sieve-like plate prevents sliding off of the holder into the pail.

The pail equipped with the partition permits separation of dirty and less-contaminated cleaning liquid. The cleaning quality is increased. Despite these two chambers, emptying is possible without a problem even with the press sieve suspended, in which the aforementioned handle trough is used. The suspendable wringing device, in conjunction with the described mop device, offers an effective drainage possibility without requiring the usual presses.

Practical examples of the invention are further described below with reference to the drawings. In the drawings

Figure 1 shows a plate-like holder in a perspective view according to one practical example of the invention,

Figure 2 shows a mop attachment for the holder according to Figure 1, also according to the invention,

Figure 2a shows a mop attachment in another variant of the invention,

Figure 3 shows the holder according to Figure 1 with the applied mop attachment according to Figure 2,

Figure 4 shows a pail with the suspended wringing device according to the invention and

Figure 5 shows a pail with an oblique wringing device according to another practical example of the invention.

The plate-like holder 1 depicted in Figure 1 is joined to the handle mount via a Cardan joint, an S-joint 4. To increase bending rigidity, reinforcement struts 2 are provided in holder 1. Grooves 3 are cut on the edges, with which the mop covering can be fastened. The holder 1 is designed in one piece and therefore requires only limited manufacturing cost. In the context of the invention, however, there are also other multipiece, for example, collapsible versions.

The mop coverings depicted in Figure 2 and 2a have the sponge cloth-like material on their bottom. A seam 7 (Figure 2) or a mesh (Figure 2a) can be provided for example, as sliding aids. Struts 6 are connected, especially stitched at a spacing of about 2 cm from the narrow side, to both long edges on the narrow sides of the mop covering 5. A cord about 5-10 cm long with a knot attachment is also preferably fastened in both depicted practical examples, roughly in the center on the mop covering, preferably roughly centered in the region of one of the struts 6. After tightening of the covering on holder 1 and locking of the cord on the holder, sliding off of the mop covering from the holder is prevented. Additional information concerning the fastening band is found in DE 38 23 456 C1, to which reference is explicitly made here.

Figure 3 shows the holder 10 with the mop covering 5 applied. In this figure, the function of the different elements and their interaction with the holder 1 are particularly apparent.

Figure 4 shows, in one of many possible variants, a pail 11 with the suspended horizontal wringing sieve 12. The edges of the wringing sieve 12 are flanged upward and are suspended on the edge of the rectangular pail 11. Easy pouring out of the pail is achieved with the round pouring spout 13 and the diagonally opposite handle trough 15. An oblique pail partition 14 divides the pail space into a chamber for dirty water and one for fresh cleaning solution. A carrying handle 18 can also be provided.

In another variant of the pail shown in Figure 5, an oblique wringing sieve 16 is provided which lies with one edge on the edge of the pail and with its other edge on the edge of the

oblique pail partition 14. A wipe-off rail or wipe-off roll 17 is applied transversely over the oblique wringing sieve 16, which facilitates drainage of the sponge cloth covering. The aforementioned stop on the end of the press plate is not shown in Figure 5, in the interest of simplicity, but can also be provided.

List of reference numbers

- 1 Holder
- 2 Reinforcement plane
- 3 Groove
- 4 S-joint
- 5 Mop covering
- 6 Strut
- 7 Seam as sliding aid
- 8 Fastening band
- 9 Mesh as sliding aid
- 10 Holder with applied covering
- 11 Pail with wringing sieve
- 12 Horizontal wringing sieve
- 13 Pouring spout
- 14 Oblique pail partition
- 15 Handle trough
- 16 Oblique wringing sieve
- 17 Wipe-off rail/roll
- 18 Carrying handle

Claims

1. Device combination for wet or damp mopping of floors, consisting, on the one hand, of a flat mop device with a holder (1) consisting essentially of a one-piece plate, which has a mop attachment (5) mounted on the bottom and a pivotable handle mount (4) applied to the opposite side of the plate, and on the other hand, of a wringing device (12, 16) for the mop attachment (5), characterized by the fact that the bottom of the plate-like holder (1) is designed as a flat surface, that the holder (1) is inflexible, and that the mop attachment (5) comprises essentially a sponge cloth, consisting primarily of cotton and viscose, occupying the entire bottom of holder (1), with a water absorbency of at least 600%, especially at least 1000% of its own weight, and is provided, at least on the side facing the floor, with sliding aids (7, 9), and that the wringing device is designed as a sieve-like plate (12, 16), especially for suspension in a pail (11).

2. Device combination according to Claim 1, characterized by the fact that the top of the holder (1) has struts to increase bending rigidity.
3. Device combination according to Claim 1 or 2, characterized by the fact that the pivotable handle mount (4) is anchored deep enough in the plate-like holder (1) so that the plate (1), during use, does not automatically tilt from the floor.
4. Device combination according to one of Claims 1-3, characterized by the fact that notches are provided in the plate-like holder (1) and/or clamping devices on the plate top for fastening of the mop attachment (5) with bands (8) applied to them.
5. Device combination according to one of Claims 1-4, characterized by the fact that the mop attachment (5) has a thickness of 2-30 mm in the dry state.
6. Device combination according to one of Claims 1-5, characterized by the fact that the mop attachment (5) has several, especially two, struts (6) or bands applied to the top for attachment on the plate-like holder (1).
7. Device combination according to one of Claims 1-5, characterized by the fact that insertion receptacles to accommodate the plate-like holder (1) are applied on the top on the long ends of the mop attachment.
8. Device combination according to one of Claims 1-7, characterized by the fact that a mesh-, strip-, ring- and/or seam-like material (7, 9), consisting of synthetic yarns, cotton, sisal and/or hemp is applied as a sliding aid on the bottom of the mop attachment (5).
9. Device combination according to Claim 1-8, characterized by fringes, loops or shag applied to the bottom on the edge of the mop attachment.
10. Device combination according to one of Claims 1-9, characterized by the fact that the wringing device is designed as a perforated sheet (12) with upward bent edges on two opposite sides for horizontal or oblique suspension in a pail (11).
11. Device combination according to Claim 10, characterized by the fact that the edges of the perforated sheet (12) are flanged upward.
12. Device combination according to one of Claims 1-11, characterized by struts on the perforated plate to prevent bending during wringing out of the mop attachment.
13. Device combination according to one of Claims 1-12, characterized by the fact that the device combination includes a pail (11) divided into two regions by a partition (14) at roughly half-height, into which the sieve-like plate (12, 16) can be suspended.
14. Device combination according to Claim 13, characterized by the fact that the partition (14) is mounted obliquely in the pouring device.
15. Device combination according to one of Claims 1-14, characterized by the fact that the sieve-like plate (16) carries a wipe-off rail or wipe-off roll (17) that extends over its width at roughly half-height for oblique introduction into a pail (11) and carries a stop on its end.

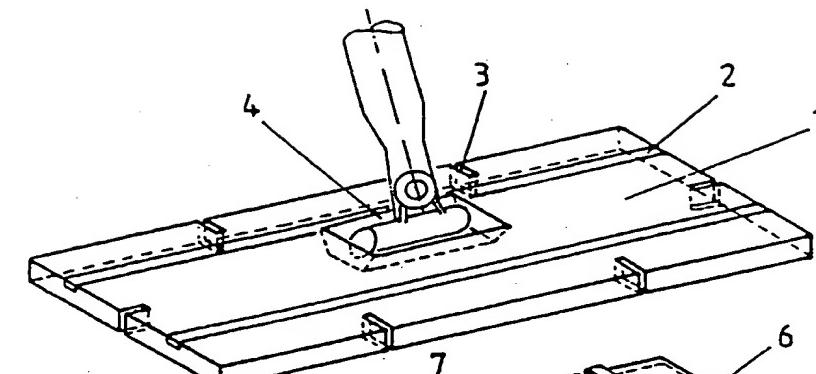


FIG. 1 *

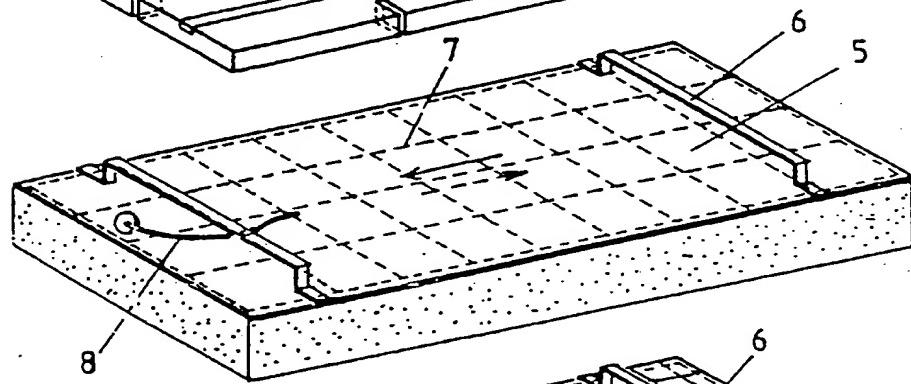


FIG. 2

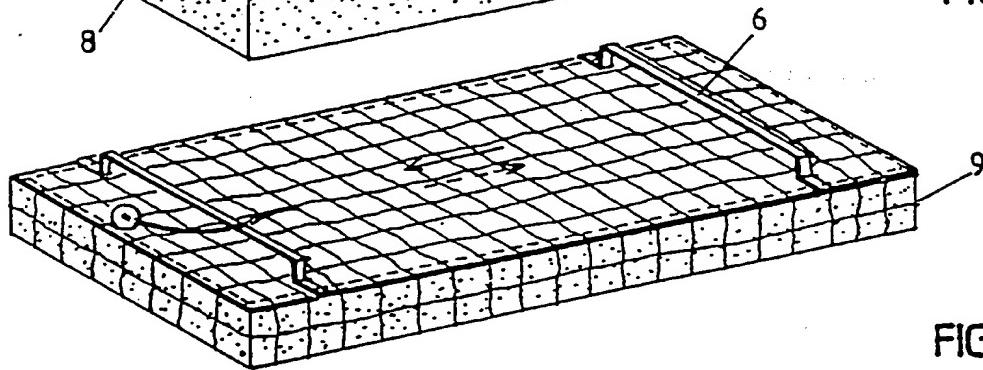


FIG. 2a

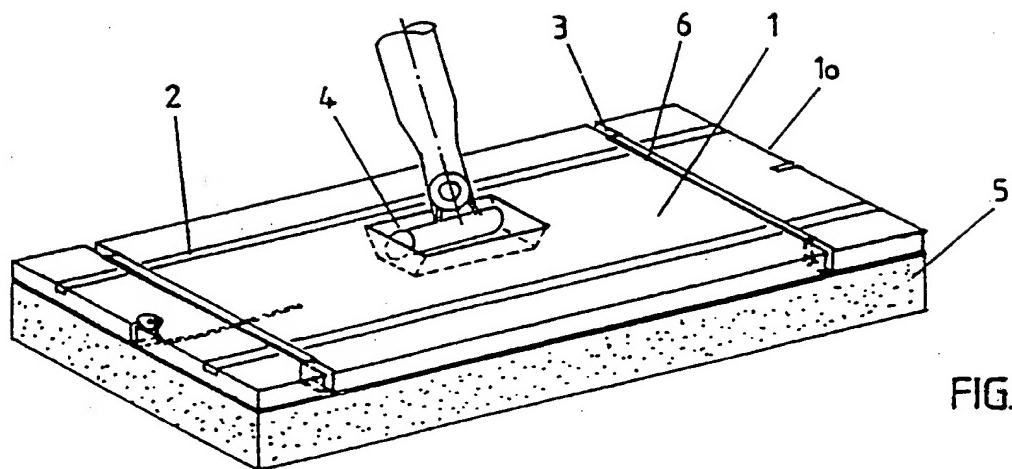


FIG. 3

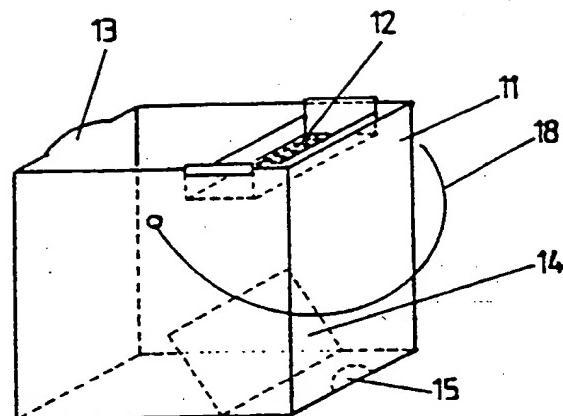


FIG. 4

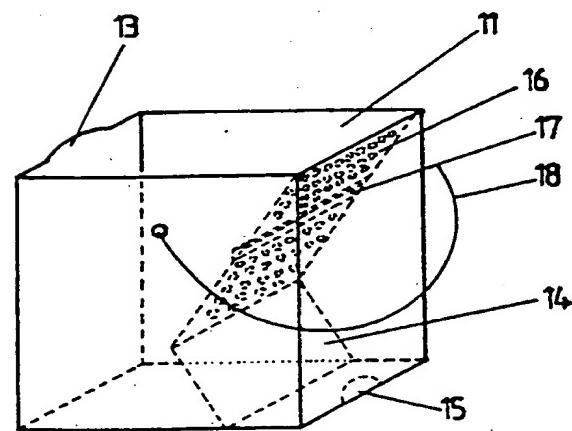


FIG. 5